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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

ANGEBRANNDT, MARTIN J

ART UNIT	PAPER NUMBER
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1795

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/523,783	Applicant(s) SASA ET AL.	
	Examiner Martin J. Angebrannt	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 2/9/2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-7,12,13, and 15-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In the claims "the molecule" lacks antecedent basis, please delete "in the molecule" in claims 1,2,3,4,12,13,15 &16 as this is redundant and confusing.

In claim 4, "metaacryloyl" should read - - methacryloyl- - .

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1 and 4 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Yamamura et al. '616.

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Example 4 in table 1 describes 1,4-bis(3-ethyle-3-oxetanylmethoxy)methylbenzene, EPOLEAD FB3600, UVI-6974 (cationic photoiniator (bis[4-diphenylsulfonio]phenyl) Sulfide bis hexafluororantimonate)) col 11/line 8-9), trimethylolpropane triacrylate and hydroxyphenylketone (radical photoiniator).

The position of the examiner is that the free radically polymerizable materials are matrix forming precursors within the scope of coverage sought.

6. Claims 1 and 4 are rejected under 35 U.S.C. 102(e) as being fully anticipated by Nishikubo et al. '053.

The composition of examples 13 includes a free radically curing composition and a cationically curable system with a 3-ethyl-3-hydroxymethyl oxetane.

The position of the examiner is that the free radically polymerizable materials are matrix forming precursors within the scope of coverage sought.

7. Claims 1,2 and 4 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Niwa et al. JP 08-218296 (machine translation attached).

The mixtures using A (an oxetane), G (a sulfonium initiator), and E or F (acrylates) with H (free radical photoinitiator) meet the claims. D is an epoxy. The addition of epoxies and the vinyl ethers is disclosed. [0060-0065]. Example 5 includes the oxetane, epoxy and acrylate.

8. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Niwa et al. JP 08-218296.

It would have been obvious to modify example 5 by replacing the epoxy compound with a vinyl ether compound.

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9. Claims 1,2 and 4 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Land et al. '029.

See example 1 in table 4, which includes an epoxy UVR 6110, oxetane, trimethylolpropane triacrylate, hexane diacrylate, 2-ethylhexyl acrylate, triphenylsulfonium hexafluorophosphate, 2,2-ethoxyacetophenone.

The position of the examiner is that the free radically polymerizable materials are matrix forming precursors within the scope of coverage sought.

10. Claims 1,2 and 4 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Yamamura et al. JP 10-168165 (machine translation attached)..

See examples 4 and 5 in table 1, which includes an epoxy PB3600, oxetane, trimethylolpropane triacrylate, triphenylsulfonium hexafluorophosphate & 1-hydroxyphenyl ketone.

The position of the examiner is that the free radically polymerizable materials are matrix forming precursors within the scope of coverage sought.

11. Claims 1 and 8-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Otaki et al. '740.

Otaki et al. '740 teaches an organic inorganic prepolymer comprising an oligomer of ethylmethacrylate and methacryloxyloxyorpolyltrimethoxy silane combined with zirconium butoxide, water and HCl which is added to a free radically polymerizable composition of polyethyleneglycol dimethacrylate (monomer) and hydroxycyclohexyl phenyl ketone (initiator) and a sensitizer. This is coated, heated to gel the composition (curing the inorganic prepolymer), recording the interference patterns and then flood curing the composition using UV. The use of

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free radically and cationically curable monomers is disclosed. [0079-0082]. The photocationically curable monomers include those having epoxy or oxetane rings. The use of 3-ethyl-3-[(2-ethylhexyloxy)methyl]oxetane, bis {1[1-ethyl(3-oxetanyl)]methyl}ether and the like is disclosed [0082]. Useful cationic photoinitiators are disclosed [0088]. The application of a second substrate as a protective layer is disclosed [0222].

It would have been obvious to use cationically curable materials such as 3-ethyl-3-[(2-ethylhexyloxy)methyl]oxetane or bis {1[1-ethyl(3-oxetanyl)]methyl}ether together with a cationic photoinitiator, in place of the polyethyleneglycol dimethacrylate and hydroxycyclohexyl phenyl ketone in the cited example with a reasonable expectation of forming a useful holographic recording material based upon the equivalence discussed at [0079-0082]. Further, it would have been obvious to one skilled in the art to add a second substrate identical to the first to act as a protective layer based upon the disclosure at [0222].

12. Claims 1-5 and 8-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dhar et al. '551, in view of Otaki et al. '740.

Dhar et al. '551 teach in example 1, an acrylate monomer and CGI-784 as the photoinitiator mixed with matrix precursors dibutyltin dilaurate, diisocyanate terminated polypropylene glycol and dihydroxypolypropylene glycol, which are heated (13/65-15). Examples 3 and 4 are similar and place the composition 270-290 microns between two 200 micron glass slides with a spacer and after curing of the matrix are used to record holograms (the ratio is 0.675-0.725). The ability to form thick recording layers of more than 200 microns is disclosed. (3/13-19, 4/3-12). Useful photoactive monomers including acrylates are disclosed as useful in this system. (6/51-67). A reduction in shrinkages of the hologram is also realized (7/1-

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48). The use of various reactions including hydrosilation, cationic epoxy polymerization, epoxy-amine, epoxy-mercaptan, isocyanate-hydroxyl and isocyanate-amine reactions and the like to form the matrix is disclosed. (6/26-50). The recording of holograms using 532 nm laser light is disclosed. (8/8). Compatibility is shown in the table in column 9. The use of plural monomers is disclosed "any monomer or monomers". The use of cationically curable monomers including epoxies, vinyl ethers and the like is disclosed (6/51-67). The use of identical glass slides on both sides of the media is taught in example 2.

It would have been obvious to one skilled in the art to modify the example of Dhar et al. '551 by replacing at least part of the acrylate monomer and CGI-784 with an oxetane containing compound such as, 3-ethyl-3-[(2-ethylhexyloxy)methyl]oxetane or bis {1[1-ethyl(3-oxetanyl)]methyl}ether disclosed by Otaki et al. '740, together with a cationic photopolymerization initiator with a reasonable expectation of forming a useful holographic recording medium based upon the direction to cationically polymerizable monomers and mixtures containing these by Dhar et al. '551 at (6/51-67) and the prior use of oxetanes in holographic recording media by Otaki et al. '740. Further it would have been obvious to glass slides on both sides as taught in examples 2-4, to use mixtures of oxetanes with vinyl ethers or epoxides and/or other compatible matrix precursors, such as the epoxies based upon the teachings of Dhar et al. '551.

13. Claims 1 and 6-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chandross et al. EP 938027, in view of Otaki et al. '740.

Chandross et al. EP 938027 teaches holographic recording media comprising an insitu formed sol gel matrix, which is mixed with a photoactive monomer, the sol-gel matrix is cured.

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(abstract, [0009-0010]). Useful monomers include various acrylates [0019]. The composition is placed between two plates with spacers or other means to hold the plates spaced apart and parallel and the matrix cured. [0025]. The medium is then exposed using a two dimensional modulator and multiple holograms may be stored by varying the angle, wavelength, phase or location of the beams on the medium. The medium is then cured using a flood exposure [0026-0027]. Examples 3 stores multiple holograms with the media formed between two glass plate held apart by a spacer and using lauryl acrylate as the monomer .[0033-0034]. The metal may be Si, Ti or Zr. The use of PMMA or polycarbonate in place of glass as the substrate is disclosed. [0025]. The use of epoxies of vinyl ethers is disclosed. [0019].

It would have been obvious to one skilled in the art to modify the example of Chandross et al. EP 938027 by replacing the lauryl acrylate monomer and photoinitiator with an oxetane containing compound such as, 3-ethyl-3-[(2-ethylhexyloxy)methyl]oxetane or bis {1[1-ethyl(3-oxetanyl)]methyl}ether disclosed by Otaki et al. '740, together with a cationic photopolymerization initiator with a reasonable expectation of forming a useful holographic recording medium based upon the direction to cationically polymerizable monomers and mixtures containing these by Chandross et al. EP 938027 at [0019] and the prior use of oxetanes in holographic recording media by Otaki et al. '740.

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Note some of these are cited in the international search report.

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15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Martin J. Angebrannndt whose telephone number is 571-272-1378. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Martin J Angebrannndt/
Primary Examiner, Art Unit 1795

Martin J Angebrannndt
Primary Examiner
Art Unit 1795

3/11/2008